79.1 76.2 50.9 40.2 33.1 23.4 27.81 FROM CASING DATE BEGUN_ LOCATION DRILL HOLE -40.279.1 76.2 50.9 27.8 115.1 33.11 TO 4/6 4.4 Dark brownish gray oil shale, highly tuffaceous with horizontal but somewhat disturbed 7.1 THICKb NW 1/4, SW 1/4 SW 1/4 sec w (pulled) USGS CORE #3 Gray brown medium rich oil shale, highly tuffaceous with contorted and steeply Lean medium gray partly weathered oil shale, upper part thinly bedded with dips of Same as interval 50.9-76.2' -Rich brown oil shale from dipping bedding up to 50° ripple markes in lower foot Broken up rock, drilled out 0.05 Gray brown moderately lean oil shale, less top of 3rd core bedding. 27.7" up to 50°, horizontal, but turbated bedding tuff 0.05' thick; 43.0-43.3', 0.3' thick; 49.4' 49.7', 0.3' thick; 46.4' -Dark brownish gray moderately rich oil _ DATE COMPLETED_6/11/78 DRILLER__McCabe thick at 77.4" Thick descrete tuffs: lower part highly turbated and folded. A 26 -] 56.8 REMARKS: tuffs noted 2 S tuff 0.05' thick at 88.1' LITHOLOGIC DESCRIPTION 1 40.2- 40.5', 0.3' thick; 42.0' -59.7' shale, interbedded with minor tuff. tuffaceous than above units. at 53.81; where >0.05' thick Tuff 0.2' thick at 27.5' to ELEVATION 57040' tuff 0.05' LOGGED BY Kurt Hollocher 47.25 lost at at 42.91 56.6 TOTAL DEPTH 306.6' PAGE. Even, Tuff 1st core bottom 14.6 Maybe float Drillers log 77.71 -12.95 63.10 62.10-64.55 14.85 measured OF. ·? 46.4-62.10 2.45' measured 15.7 46.4 27.8 1 measured 93 77.7

GPO 846 - 153

Drill hole

171.7 191.3	170.2 171.7	156.4 170.2	151.5 156.4	150.7- 151.5	117.0	115.1 117.0	FROM TO THICK-	DRILL HOLE USGS LOCATION NW 1/. DATE BEGUN 6/9/ CASING 46
um rich oil shale, thinly bedded with little turbation 3-179.5; tuff 0.1' thick at 181,2; tuff 0.1' thick at 35.0-185.2; tuff 0.3' thick at 187.3-187.6.	ated 0.05' thick at 160.9', Tuff 0.5' the 168.3' and 170.2'.	at 156.0'. Same as interval 50.9'-76.2' medium grade oil shale. Tuff with minor oil shale 0.1' thick at 158.3'. Tuff with minor oil shale 0.4' thick 159.8-160.2'.	Medium rich oil shale thinly bedded with moderate turbation. Tuff 0.05' thick at 153.3'. Tuff, turbated 0.05' thick at 154.2'. Tuff turbated 0.05' thick	44.4' with tuff.	Same as interval 50.9 76.2'. Tuff 0.05' thick at 119.2;/Rich oil shale dark brown 0.1' thick at 132.7'; rich oil shale 132.3 - 133.6 interhedded with 134.3-147.7 moderately rich oil shale and tuff. Tuff 0.05' thick at 135.0'. Rich oil shale 13.5	Rich oil shale with tuff, thinly bedded, little turbation tuff 0.05' thick at 118.1. Some leaner oil shale mixed in.	LITHOLOGIC DESCRIPTION	S #3A PAGE 2 OF 5 VA SW/1/4 Sec. 26, T. 2 S., R. 95 W. ELEVATION 57040 TOTAL DEPTH 306.6 VA SW/1/4 Sec. 26, T. 2 S., R. 95 W. LOGGED BY Kurt Hollocher REMARKS:

217.1 208.1191.3FROM 192.5DATE BEGUN 6/9/78 CASING LOCATION NW 1/4 SW 1/4, SW 1/4 sec. DRILL HOLE USGS #3A 217.1 208.1 192.5 TO THICK-NESS 46' pulled 0.09' at 234.0; tuff 0.07 thick at 234.5; tuff 0.05' thick at 234.9'; tuff 0.08' 232.3'; tuff0.08' thick at 232.8'; tuff 0.06' thick at 232.9'; tuff 0.1' thick a 0.2' thick at 230.8-231.0; tuff 0.15' thick at 231.2-231.35; tuff 0.08' thick at Turbated tuff 0.1' thick at 227.0' tuff 0.07' thick at 230.0'; turbated tuff Horizontal thin bedding with abundant tuff. Brown, dark gray brown, moderately rich oil shale with turbation in parts Dark brown rich oil shale thinly bedded wtih little turbation 207.0; thick tuff with minor oil shale toward top 0.8' thick from 207.3-208.1' with tuff 204.2'-205.5' Tuffs very common. Tuff 0.07' thick at 195.3; tuff with minor oil shale 0.2' Medium rich brown to gray brown oil shale, 233.41; thick at 218.8'; tuff 0.2' thick at 219.1-219.3'; tuff 0.4' thick at 220.6-220.9 thick at 216.3; tuff 0.1' thick at 217.0 at 212.7' tuff 0.07' thick at 213.5'; tuff 0.05' thick at 215.5'; tuff 0.08' at 199.0; tuff 0.2' thick at 199.2'- 199.4'; rich oil shale, dark brown interbedded at 198.3; tuff 0.05' thick at 198.4; tuff 0.05' thick at 198.5; tuff 0.1' thick Rich dark brown oil shale interbedded with pink and gray tuff. tuff 0.05' thick at 197.6; Tuff 0.15! thick from 198.0-198.15; tuff 0.05' thick thick at 196.1- 196.3. Tuff 0.06' thick at 196.9'; tuff 0.05' thick at 197.5 thick at 192,2' DATE COMPLETED 6/11/78DRILLER tuff 0.15' thick at 233.5 H REMARKS: Tuff 0.15' thick 205.05-205-2; tuff 0.06' thick at S LITHOLOGIC DESCRIPTION to 233.65'; tuff 0.05' thick at 233.7; tuff Mc Cabe 95 W thinly bedded with little turbation Tuff 0.05' thick at 217.6; tuff 0.1 ELEVATION 5 7040 LOGGED BY Kurt Hollocher Tuff 0.05' thick Tuff 0.05' TOTAL DEPTH PAGE_ OF 306.61

GPO 846 - 153

Drill hole

U. S. GEOLOGICAL SURVEY

	256.4 264.7				FROM TO T	DRILL HOLE US LOCATION NW CASING 46'
hale 430 percent 25 1 shale; tuff 0.7' 260.1'; tuff 0.08	0.05' thick at 255.3; tuff 0.15' thick at 256.3' - 2 Dark brown rich oil shale with abundant tuff and som bedded with little turbation. Tuff 0.15' thick at 2	at 248.7-248.82; tuff 0.25' thick at 249.65-249.9'; tuff 0.05' thick at 25 tuff 0.2' thick at 25 tuff 0.2' thick at 25 at 252.3 - 252.5 with minor bedded shale; tuff 0.1 tuff 0.1 thick at 253.1'; tuff 0.15' thick at 253.2-253.35; tuff 0.05' thick at 253.8';tu	239.4 - 241.4; 2.0' thick. Tuff 0.1' thick 6' tuff 0.05 thick at 241.7; tuff 0.15 thick k at 243.7; tuff 0.05' thick at 244.8'; tuff thick at 246.7-246.85'; tuff 0.2' thick at	thick at 235.7'; tuff 0.2' thick at 235.85-236.05; tuff 0.15' thick at 236.6-236.75' tuff 0.25'- thick 0.2' thick at 237.9-238.1 with minor oil shale; tuff Tuff turbated with oil shale from 238.6-239.4, 0.8'	NESS LITHOLOGIC DESCRIPTION	USGS Core #3A NW 1/4 SW 1/4, SW 1/4, sec. 26, T. 2 S., R. 95 W. 16/9/78
258.1; Tuff k_at_259.3-2 ick_at_263.4	= 256.45' some leaner oil shale. Thinly t 257.25-257.4. Six or more	'; tuff 0.05' thick at 250.4'; shale; tuff 0.2' thick at thick at 252.7; tuff 0.1' thick 0.05' thick at 253.8';tuff	241.5" 241.8-2 05' thic	05; tuff 0.1' thick at 236.0; hick at 236.9' - 237.15'; tuff tuff 0.35 thick at 238.1-238.45' 0.8' thick. Tuff, largely massive		PAGEOF

GPO 846 - 153

Drill hole

DATE BEGUN _6/9/78 LOCATION NW 1/4 SW 1/4 SW 1/4 sec. DRILL HOLE, CASING 46' pulled USGS Core #3A DATE COMPLETED_6/11/78DRILLER_ 26, T. REMARKS: 2 S., R. McCabe 95 W. ELEVATION 5 7040 _ LOGGED BY ___Kurt Hollocker _ TOTAL DEPTH 306.6' PAGE 5 OF 5

no gray; tuff 0.5' thick at 301.8-302.3'.			
thick			
297.5; tuff 0.75' thick at 298.35-299.1;/ tuff 0.2" thick at 299.15-299.35;			
shale from 294.5- 295.0; tuff pink and gray from 295.0-296.7, 1.7' thick; tuff 0.1' thick at 297.0; tuff 0.15' thick at 297.1-297.25; tuff 0.1' thick at			
292.5-292.7; tuff 292.85 - 294.5, 1.65' thick; 470 percent tuff, 30 percent oil			
upper foot 4.8' thick total; tuff 082' thick with minor shale, turbated from			
turbated with oil shale 284.8 - 287.3'; Tuff 287.5-292.3' with minor oil shale in			
tuff 0.15' thick at 283.6-283.75; 50 percent numerous tuffs interbedded with and			
283.15-283.35; tuff 0.3' thick at 283.4-283.7; tuff 0.55' thick at 283.95-284.5;			
at 282.7 - 282.85'; tuff 0.1' thick at 283.0-283.1; tuff 0.2; thick at			
tuff 0.05' thick at 280.9'; tuff 0.3' thick at 281.6-281.9'; tuff 0.15' thick			
turbation. Abundant tuff, some leaner oil shale; tuff 0.05' thick at 279.4';		OF HOLE	BOTTOM
Brown to dark brown oil shale, rich, thinly bedded with generally little		306.6	278.2
277.45-277.6' with minor shale.			
oil shale interbedded with tuff and leaner oil shale. Tuff 0.15' thick at			
tuff 0.06' thick at 273.2'; tuff 0.1' thick at 274.2'; 275.3'-276.7' rich brown			
266.8'; tuff 0.08' thick at 268.4'; 50 percent thin tuffs from 268.6-270.9;			
turbation. Tuffs abundant. Tuff 0.07' thick at 265.5'; tuff 0.12' thick at			
Brown to gray brown moderately rich oil shale, thinly bedded with little		278.2	264.7
LITHOLOGIC DESCRIPTION	THICK- NESS	TO	FROM